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ABSTRACT

The study examined associated treatment effects on State Board Examination (SBE) scores of two predominantly black nursing classes who had been exposed to different intervention methods: (1) the teaching of effective test-taking skills, and (2) a combination of that instruction with learning team methods. The SBE performance of the two groups who received intervention was compared with each other and with a control group who received no intervention instruction. Both groups receiving intervention attained significantly higher scores than the control group. However, the group exposed to both effective test taking instruction and learning team methods had a mean SBE score significantly higher than the other two groups. Results indicated that cooperative learning, coupled with effective test taking techniques, assisted students in acquiring, processing, and applying information on comprehensive standardized tests. (Author/DWH)

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# INTERVENTIVE EFFECTS ON NURSING STATE BOARD EXAM SCORES FOR GRADUATES OF A TRADITIONAL BLACK COLLEGE

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## ABSTRACT

One of two intervention approaches, 1) the teaching of effective test-taking approaches, and 2) the combination of that instruction with learning team methods, were employed for two groups of predominantly black nursing students scheduled to take the State Board Exam (SBE). The SBE performance of the two groups were compared along with that of a comparison group. Both groups receiving intervention attained significantly higher scores than the comparison groups. But the group exposed to both effective test-taking instruction and learning team methods had a mean SBE score significantly higher than the other two groups. The implication of the results are discussed.

# INTERVENTIVE EFFECTS ON NURSING STATE BOARD EXAM SCORES FOR GRADUATES OF A TRADITIONAL BLACK COLLEGE

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For numerous reasons, both educationally and socially related, the performances of minority students on standardized exams are generally lower than their nonminority counterparts (Epps, 1975; Astin, 1982). As pointed out by Phillips (1982), this has led some to not only question the fairness of standardized tests but also hold the view that such tests are barriers to equal educational opportunities for minorities. Along those same lines standardized tests might also be viewed as barriers to career opportunities. Thus, the development of effective approaches to address the problem of generally depressed standardized test scores of minority students should be a major goal of educators concerned with developing human potential.

Consequently, facilitating performance on standardized tests is a critical problem. But, standardized tests are designed to be insensitive to improved performance resulting from various types of intervention (McGaghie, Engel, and Risley, 1978). There have, however, been studies indicating that various approaches to teaching test-taking skills can make a difference regarding performance (Bajtelsmit, 1977; Frierson, 1982; FTC, 1979; Marron, 1965; Slack & Porter, 1980; Scott, et al., 1980). But few studies have focused on test-taking skill interventions that addressed low standardized test performances in minority students where performances have generally been most depressed. Test-taking skills as applied here

refers to the capacity to accurately demonstrate learned information on evaluative tests, and hereupon will be termed effective test-taking.

Although the results have been mixed, some studies also cite the benefits of cooperative learning methods (Humphreys, Johnson & Johnson, 1982; Sharan, Ackerman & Hertz-Lazarowitz, 1980). Sharan (1980) described cooperative learning as team-learning methods for promoting achievement. But the published studies on cooperative learning addressed classroom achievement and not standardized test performance. In addition, most of the research, as indicated in Slavin's (1980 and 1983) reviews of cooperative learning research, involved elementary and secondary school children instead of college students or adults. Although some years earlier, Graffam (1964) and even earlier still, Deutsch (1953) advocated the use of learning teams in post-secondary settings. Further, Bligh (1977), having adult learners in mind, discussed the socio-emotional benefits derived from participating in cooperative groups. The concept of cooperative learning also seemed appropriate for college level students as well and worthy of investigation. Moreover, baccalaureate nursing students appear to be an appropriate group to examine relative to the association of cooperative learning method and performance.

Nursing students in baccalaureate programs find themselves in positions where not only is classroom achievement important but eventual performance on a standardized test is crucially important. Although the general academic support needs of nursing students do not appear to differ from that of other students, but if they wish to become licensed and embark upon their professions, nursing students must clear a significant hurdle, the State Board Examination (SBE). The SBE is an exam all baccalaureate

nursing students must pass and is crucial to become a professional registered and licensed nurse. But the exam can be a formidable barrier, for example, Overstreet (1983) reported that over a two year period in one state, more than 25 percent of the new nursing school graduates who took the SBE, failed on their first attempts. The formidability of the SBE may loom particularly large for minority students. Based on personal observations, frequently nursing school graduates who have had difficulty passing the SBE have clearly demonstrated their knowledge and skills in numerous other settings, e.g., the classroom and hospital wards. Moreover, based on an earlier study by Miller, Feldhusen and Asher (1968), clinical variables such as nursing course grades ranked below Scholastic Aptitude Test scores and high school rank as a predictor of SBE scores. Thus, inability to accurately demonstrate knowledge on the SBE can be a critical obstacle to licensure.

Because of the importance of a test such as the SBE and the problem associated with minority students' generally depressed performance on standardized tests, this study attempted to examine outcomes that were related to both issues. Thus, the purpose of this study was to examine the associated treatment effects on SBE scores of two predominantly black nursing classes who had been exposed to different intervention methods: 1) effective test-taking instructions and learning team methods and 2) effective test-taking instructions only. Hence the following questions were addressed:

1. Could intervention significantly affect first-time performance on the SBE?
2. Were there differences in the effectiveness of the two intervention methods?

## METHOD

### Sample

The sample constituted a cohort of 139 nursing seniors (129 black and 10 white students) over a four year span who took the SBE in the month of July after graduation. The students attended a traditionally black southern college. Three groups were formed based on the graduation year during the four year period, and two groups received one of the two intervention methods whereas the third, the comparison group, received neither intervention method. The comparison group consisted of 74 students (70 black and 4 white students) who graduated during the first two years of the four year period. For the intervention groups: the effective test-taking instructions and learning team methods (ETI/LT) group contained 35 students (33 black and 2 white students) who graduated during the third year, and the effective test-taking instructions (ETI) comprised 30 students (27 black and 3 white students) who graduated in the fourth year.

All three groups were comparable when: SAT scores, pre-nursing GPA, junior nursing GPA, and fall semester GPA were compared as indicated by insignificant F's when analysis of variance was conducted for each of those variables. Thus, the three groups can be viewed as being similar on indices of prior academic and standardized test performances.

### SBE

The SBE is a norm-referenced standardized test that covers five major area of nursing: medicine, obstetrics, pediatrics, psychiatry, and surgery. The national mean score is 500 and a score of 350 was required for each area. For this study, the students' mean score across the five areas were examined.

INTERVENTION

ETI/LT: Effective Test-taking Instructions and Learning Team Methods

During six two-hour sessions over a seven week period, beginning in the first half of the spring semester, the ETI/LT group was exposed to intervention focusing on both effective test-taking and cooperative learning methods. The objective was to see if improved SBE scores would result when effective test-taking instruction and cooperative learning methods are combined.

The first two sessions consisted entirely of instructions and exercises related to effective test-taking. For example, the following were addressed in the first two sessions:

1. General systematic and effective test-taking procedures to reduce unnecessary errors that occur when test-takers: fail to recognize key words in item stems, misread item stems and options, misinterpret information in item stems, respond to questions too hastily, fail to answer all test items, etc.
2. The use of deductive reasoning in decision-making to select correct options while visibly eliminating incorrect options or distractors.
3. Pacing or time-management when taking tests to insure that the test-taker will complete exams in the allotted time, or at least have the opportunity to respond to all items that can be reasonably answered.
4. Urging students to have confidence in their knowledge particularly when they took great efforts to prepare for the test. Hence encouraging them to use and rely on their knowledge when confronted with items containing unfamiliar or difficult content.

5. For inevitable guessing situations, the use of identifiable cues for assessing the validity of options instead of being constrained to resort to random responses when selecting answers.
6. The use of simulated exams for practicing and reinforcing the effective test-taking approaches introduced.
7. Practice exercises with simulated exams were also used to demonstrate that when effective test-taking procedures are consistently applied, students should not feel intimidated by exams, but instead view exams as a means to display their knowledge.

During the intervention sessions, students also practiced effective test-taking methods on simulated (practice) exams. In addition, the participants were encouraged to use the practice exams as self-assessment instruments to provide direction for reviewing or studying relevant subject materials. A key element in self-assessment was the use of practice exams to uncover any weaknesses in students' approach to test-taking and, importantly, to examine weaknesses in knowledge or subject content. Students could then take steps to address self-identified knowledge deficiencies.

Prior to the third session, the students were placed in heterogeneous groups. The group formations were based on the students' academic performance in nursing school to ensure that each group contained an equivalent mix. The third session consisted of team building exercises that centered around the use of practice exams for attaining group answers through discussion followed by consensus methods. The remaining three sessions consisted of continued reinforcement of effective test-taking approaches and reinforcement of learning team methods by having the

students take practice exams individually, and then colloborate with their team members to reach the correct answer by pooling and sharing their knowledge. To liven and add fun to the exercises, contests were held where the learning teams would compete to determine which team could produce the highest score; and also since both teams amd individual scores were tallied, which team could most effectively pool their knowledge to generate team scores substantially higher than the highest individual score of the group.

The students were encouraged to work in their learning teams on a regular basis outside of the scheduled intervention sessions, and also to continue doing so until the end of the semester, and if possible, up to the administration of the SBE in July. They were also encouraged to continue reinforcing their test-taking skills by using practice exams on a regular basis up to the time of the SBE.

ETI: Effective Test-taking Instructions

The ETI group was exposed to four intervention sessions, over a five week period beginning in the first half of the spring semester. The focus was enntirely upon effective test-taking. Structured group building of learning teams did not occur. All the effective test-taking instructions elements discussed for the ETI/LT group occurred for the ETI group, but there was no focus on reinforcing test-taking skills via grouup procedures. The students were encouraged to use practice tests for self-assessment purposes and to continue reinforcing effective test-taking skills outside of the scneduled intervention sessions on up to the administration of the SBE.

Analysis

Analysis of covariance, using the General Linear Model Procedure (which is appropriate for unequal cell size) was employed. Since previous standardized achievement test scores tend to predict subsequent standardized test performance, the SAT was used as a covariate to control for differences attributable to prior standardized test performance. Earlier SBE prediction studies confirmed SAT performance as an appropriate covariate since it was found to be the best predictor of SBE performance (Blackman and Steindler, 197[illegible]; Miller, Feldhusen, and Asher, 1968).

RESULTS

The results of one-way analysis of covariance using the General Linear Model showed a significant difference between the groups on the SBE with SAT performances controlled ($F = 13.77$, $p < .0001$). The obtained and adjusted SBE means for the ETI/LT, the ETI and comparison groups are shown in Table I. Group contrasts of the adjusted means showed significant differences between all three groups: The adjusted mean SBE score for the ETI/LT group was significantly higher than both the comparison group ($p < .0001$) and the ETI group ($p < .025$); also the adjusted SBE mean of the ETI group was significantly higher than that of the comparison group ($p < .02$).

TABLE I

Mean SAT and Mean and Adjusted Mean SBE Scores

| | Controlling Variable | | | Criterion Variable | | |
|---|---|---|---|---|---|---|
| | | SAT | | SBE | | |
| | | | | Obtained | | Adjusted |
| Group | N | Mn | SD | Mn | SD | MN |
| Comparison | 74 | 721.45 | 98.12 | 355.80 | 80.84 | 354.96 |
| ETI/LT | 35 | 716.73 | 141.39 | 450.43 | 107.31 | 453.04 |
| ETI | 30 | 731.83 | 126.06 | 405.08 | 87.15 | 401.32 |

DISCUSSION

Based on the results it can be concluded that both intervention methods are associated with improved standardized test scores: both intervention groups had mean SBE exam scores significantly higher than the comparison group. But the effective test-taking instructions and learning team approach, was associated with a mean SBE exam score that was significantly higher than the group receiving only effective test-taking instructions.

Although the higher scores associated with effective test-taking instruction was consonant with other studies that concluded that intervention, the effect of effective test-taking instructions on the SBE seems to be enhanced even more by learning team methods. Consequently, the results can lead to the conclusion that cooperative learning, coupled with effective test-taking techniques assist students in acquiring, processing, and finally applying information on comprehensive standardized

tests. Effective test-taking instruction, on the other hand, seems more useful in helping students effectively apply learned information on tests. From a theoretical perspective, both improved test-taking and cooperatively participating in learning teams, can enhance performance on standardized tests such as the SBE, which measures wide areas of content.

As suggested by the results, this study has widespread and positive implications. Although the results are clearly generalizable to predominantly black nursing classes at predominantly black colleges, the implications are significant for students who are generally expected to exhibit depressed standardized test performances. Since the intervention approaches used does complement regular instructions and time spent on learning, the implications are also significant for developing programs that enhance both standarized tests and classroom performances of minority students; hence, enhancing their chances for both educational and professional opportunities. Also of note as based on the observed performances of the few non-black students, those students in the intervention groups also perfomed at higher levels than those who were in the comparison group. Thus, the intervention methods seem to promise benefit for students from a broad spectrum.

Finally, the results also suggest that the intervention methods, particularly the ETI/LT approach, appear to have promising implications for students in a wide array of educational levels, from precollege to continuing professional education, where standards of performance must be met. Hence, further investigations in the use of team learning and approaches like the teaching of effective test-taking be conducted and examined to determined the effectiveness in enhancing learning and performance for a variety of students are strongly encouraged.

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